

# NASA TECH BRIEF



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## Device for Printing Alphanumeric Listings and Digital Data Plots

A commercially available high-speed printer has been modified to perform x-y plotting of digital data. The resulting device performs the dual function of printing and plotting at relatively low cost.

In the plotting mode, the device is capable of producing a typical (7-inch square) plot in less than 25 seconds. Any number of points can be plotted in this time, with a resolution of 1 part in 500 (0.2%). Several variables can be plotted simultaneously using a different symbol for each variable. The plotter generates any one of a number of different grid patterns, complete with titles, axes-labels, and numerical scales. When not plotting, the device can be used as a 300 per second character printer.

The unmodified printer was designed to write on electrosensitive paper using a moving conductive stylus. Characters were made up from elements of a  $5 \times 7$  dot matrix that was printed by applying current pulses to the scanning stylus. A special translator was required for use with the printer to translate input information into the pulse sequence required by the printer.

Modification of the printer to a plotting device required three developments. The paper advance mechanism of the printer was modified to allow printing to be done in the blank areas forming the vertical spacing between alphanumeric lines. The synchronizing system used with the moving stylus was improved, with a resulting improvement in the resolution of the print-

ing device. A small digital computer was used to replace the original character translator, allowing the generation of additional printing elements required for plotting. In many cases, the device will find applications in existing computer-oriented systems without additional computer hardware.

### Notes:

1. The following documentation is available from:  
Clearinghouse for Federal Scientific  
and Technical Information  
Springfield, Virginia 22151  
Single document price \$3.00  
(or microfiche \$0.65)

Reference: NASA-TN-D-5474 (N69-38654),  
A Device for Producing Both Hard Copy  
Alphanumeric Listings and Digital Data  
Plots

2. Technical questions may be directed to:  
Technology Utilization Officer  
Lewis Research Center  
21000 Brookpark Road  
Cleveland, Ohio 44135  
Reference: B70-10002

### Patent status:

No patent action is contemplated by NASA.

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